

WHAT IS CLAIMED IS:

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1. An apparatus for efficiently coding a moving picture signal, comprising:
 - a main coding processor to selectively encode an input moving picture signal by intra-picture coding or inter-picture coding in unit of frame or field to output a main bit stream;
 - a subsidiary coding processor to encode specific frames or fields carried by the input moving picture signal by intra-picture coding to output a subsidiary bit stream, the specific frames or fields being also coded by the inter-picture coding by the main coding processor; and
 - a multiplexer to multiplex the main and subsidiary bit streams so that the subsidiary bit streams are periodically inserted in the main bit stream in the vicinity of a predetermined number of the frames or fields coded by the inter-picture coding, thus generating an output bit stream.
2. The apparatus according to claim 1, wherein the main and the subsidiary coding processors execute the intra-picture coding with different coding parameters.
3. The apparatus according to claim 1, wherein the main coding processor selectively executes uni-directional predictive coding and bidirectional predictive coding in unit of frame or field.
4. The apparatus according to claim 3, wherein the subsidiary coding processor encodes the specific frames or fields that are also coded by the uni-directional predictive coding by the main coding processor.
5. An apparatus for efficiently decoding a moving picture signal, comprising:
 - a detector to detect a coding-type of an input bit stream formed by multiplexing a main bit stream of frames or fields and subsidiary bit streams, the subsidiary bit streams being periodically inserted in the main bit stream in the vicinity of a predetermined number of the

frames or fields, the main bit stream having been coded at quantization steps finer than other quantization steps at which the subsidiary bit streams having been coded, and a coding-type information indicating whether the main bit stream is or the subsidiary bit streams string are input, the detector detecting the coding-type information and generating a coding-type signal;

a controller to selectively output the main and the subsidiary bit streams in response to at least the coding-type signal in such a way that the controller outputs both the main and the subsidiary bit streams when no continuous decoding is being performed, while the controller outputs only the main bit stream when continuous decoding is being performed; and

a decoder to decode the output bit stream to reproduce pictures carried by the input bit stream.

6. An apparatus for efficiently decoding a moving picture signal, comprising:

a first detector to detect a coding-type of an input bit stream formed by multiplexing a main bit stream of frames or fields and subsidiary bit streams, the subsidiary bit streams being periodically inserted in the main bit stream in the vicinity of a predetermined number of the frames or fields, the main bit stream having been coded at quantization steps finer than other quantization steps at which the subsidiary bit streams having been coded, and a coding-type information indicating whether the main bit stream is or the subsidiary bet streams are input, the detector detecting the coding-type information and generating a coding-type signal;

a second detector to detect an error of the input bit stream and generating an error indicating signal that indicates at which of the frames or fields the error occurs;

a controller, in response to the coding-type and error indicating signals, to replace the main bit stream of a frame or field with a subsidiary bit stream inserted in the vicinity thereof at which the error occurs with the subsidiary bit stream; and

a decoder to decode an output bit stream of the controller by intra-picture decoding or inter-picture predictive decoding to reproduce pictures carried by the input bit stream.

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information indicating whether the main bit stream is or the subsidiary bit streams string are input, the detector detecting the coding-type information and generating a coding-type signal;

selectively outputting the main and the subsidiary bit streams in response to at least the coding-type signal in such a way that the controller outputs both the main and the subsidiary bit streams when no continuous decoding is being performed, while the controller outputs only the main bit stream when continuous decoding is being performed; and

decoding the output bit stream to reproduce pictures carried by the input bit stream.

12. A method of efficiently decoding a moving picture signal, comprising the steps of:

detecting a coding-type of an input bit stream formed by multiplexing a main bit stream of frames or fields and subsidiary bit streams, the subsidiary bit streams being periodically inserted in the main bit stream in the vicinity of a predetermined number of the frames or fields, the main bit stream having been coded at quantization steps finer than other quantization steps at which the subsidiary bit streams having been coded, and a coding-type information indicating whether the main bit stream is or the subsidiary bit streams are input, the coding-type information being detected, and generating a coding-type signal;

detecting an error of the input bit stream and generating an error indicating signal that indicates at which of the frames or fields the error occurs;

replacing the main bit stream of a frame or field with a subsidiary bit stream inserted in the vicinity thereof at which the error occurs with the subsidiary bit stream in response to the coding-type and error indicating signals; and

decoding the bit stream for which the main bit stream is replaced with the subsidiary bit stream by intra-picture decoding or inter-picture predictive decoding to reproduce pictures carried by the input bit stream.

13. A storage medium comprising an area for storing moving

picture data, the area including main bit stream regions stored on which are main bit streams formed by intra-picture coding and inter-picture predictive coding which are switched per frame or field of moving pictures, and subsidiary bit stream regions stored on which are subsidiary bit streams formed by intra-picture coding specific frames among frames that are also coded by the inter-picture predictive coding, the main and subsidiary bit streams being multiplexed so that the subsidiary bit streams being inserted in the vicinity of the main bit streams for specific frames or fields.